to the metal nanoparticles stability problem. The incorporation of metal nanoparticles into the biopolymer matrix offers enhanced performance for both the host and the guest. These materials are extremely attractive candidates for use in biotechnological and microbiological systems. The products were characterised by FT IR, $^{1}$H NMR, UV-Vis, SEM, TG-DTA and DSC analysis.

A new class of metal nanoparticle impregnated and functionally modified natural polymers were prepared using the encapsulation approach. Lignin, chitosan and bovine serum albumin functionalised with 3-[(E)-(4-aminophenyl) diazenyl] naphthalen-2-ol carboxylic acid and 4-(1-pyrenyl)butyric acid were encapsulated with silver nanoparticles. The products were characterised by FT IR, $^{1}$H NMR, UV-Vis, SEM, TG-DTA and DSC analysis. Photochemical, photophysical and thermal properties of all the systems were studied.

The work can be extended to explore the biological and biomedical utility of the systems developed in this work. This need more *in vitro* and *in vivo* investigations.

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